Instructor:	Ira Winder, Room 9-547
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Teaching Assistant:	Nina Lutz, Room E15-488a
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Credits:	3 credits
Prerequisite(s):	6.00 or permission of instructor
Class Meetings:	January 22nd – February 1st; Daily 2-4pm
Room:	9-450

Subject Overview

Introduction to novel interactive engagement tools for the study and design of cities, blending software with playful mediums such as Lego bricks or modeling clay. Students learn how to formulate and develop interactive simulations of complex urban systems representing a diversity of stakeholders. Lectures include case studies of real-world interactive simulations developed for research and practice. Seasoned professionals offer project-based tutorials in Processing, a flexible software sketchbook for coding in the context of visual arts. Final projects are completed as individuals or teams in a competition format, judged by a panel of Urban Science faculty.

Learning Objectives

Apply basic computer science skills toward solving problems in Urban Science. Gain the confidence and capability to build your own digital artifacts for later use in practice and advanced research.

Completion Requirements

Class Participation - 9 sessions over IAP; Optional Session on Saturday, January 26th 2-4pm
Homework Assignments – occasional visual programming exercises in Processing
Final Design Project - as Individual or Small Team

Optional Readings

- Keeney, Ralph L. and Howard Raiffa. Decisions with Multiple Objectives: Preferences and Value Tradeoffs. Cambridge University Press, 1993.
- Schon, Donald A. and Martin Rein. Frame Reflection: Toward the Resolution of Intractable Policy Controversies. Basic Books 1994.
- Lazar, Jonathan, Jinjuan Heidi Feng, and Harry Hochheiser. Research Methods in Human-Computer Interaction. Morgan Kaufmann, Second Edition, 2017.
- Tutorials and resources from https://processing.org/

Meeting (Week – Date)			Subject Matter	Assignments Due
Week 1	Tue	Jan 22	Urban Science and Multi-objective Decision-making Tutorial: Interaction + Visualization	
	Wed	Jan 23	Lecture: Working with Urban Data Tutorial: Importing Geospatial Data	Interactive Visualization Exercise
	Thu	Jan 24	**Guest Speaker:** Carl Christensen, Spacemaker AI Lecture: Urban Systems Modeling Tutorial: Modeling & Simulation	Data Exercise
	Fri	Jan 25	**Guest Speaker:** Eric Plosky, USDOT Working Session	Modeling Exercise Final Project Topic
	Sat	*Jan 26*	*(Optional) Work Session:* *Build Lego Table!*	
Week 2	Mon	Jan 28	**Guest Speaker:** Jeremy Burke & Ramon Gras Aloma, Harvard GSD Working Session	Final Project: Progress + Roadmap
	Tue	Jan 29	Working Session	
	Wed	Jan 30	Working Session & Debugging	Desk Critiques: Revised Roadmap
	Thu	Jan 31	Working Session & Debugging	
	Fri	Feb 1	Final Presentations	Final Projects Due

Class GitHub Repository: https://github.com/irawinder/cusw-IAP19